

ABSTRACT

Methods and apparatus for scheduling mobile stations (MSs) to download data to and/or to control the rate of downloading to an MS from a base station (BS) as a function of downlink channel condition information are described. Artificial channel variations, which can be measured at the MS, and feedback to a BS for scheduling purposes, are introduced through the use of two or more transmitter antennas at a BS. Each of the antennas transmits a signal at the same frequency having the same information content, e.g., modulated data. However the signals are made to differ with time in their phase and/or amplitude. Multiple signals having the same transmission frequency and information content are received and interpreted as a single composite signal by a receiving MS. The interaction of the received signals and the intentional variations introduced into the signals result an MS detecting different signal amplitudes and/or phases over time even when the total amount of power used to transmit the combination of the signals having the same information content remains constant with time. Data transmission rates are controlled in some embodiments as a function of channel conditions, e.g., the better the channel conditions the faster the transmission data rate used. By varying the data rate as a function of channel conditions and by preferring MSs with good channel conditions to those with bad channel conditions, improved overall throughput can be achieved by a BS with regard to downlinks as compared to known systems.